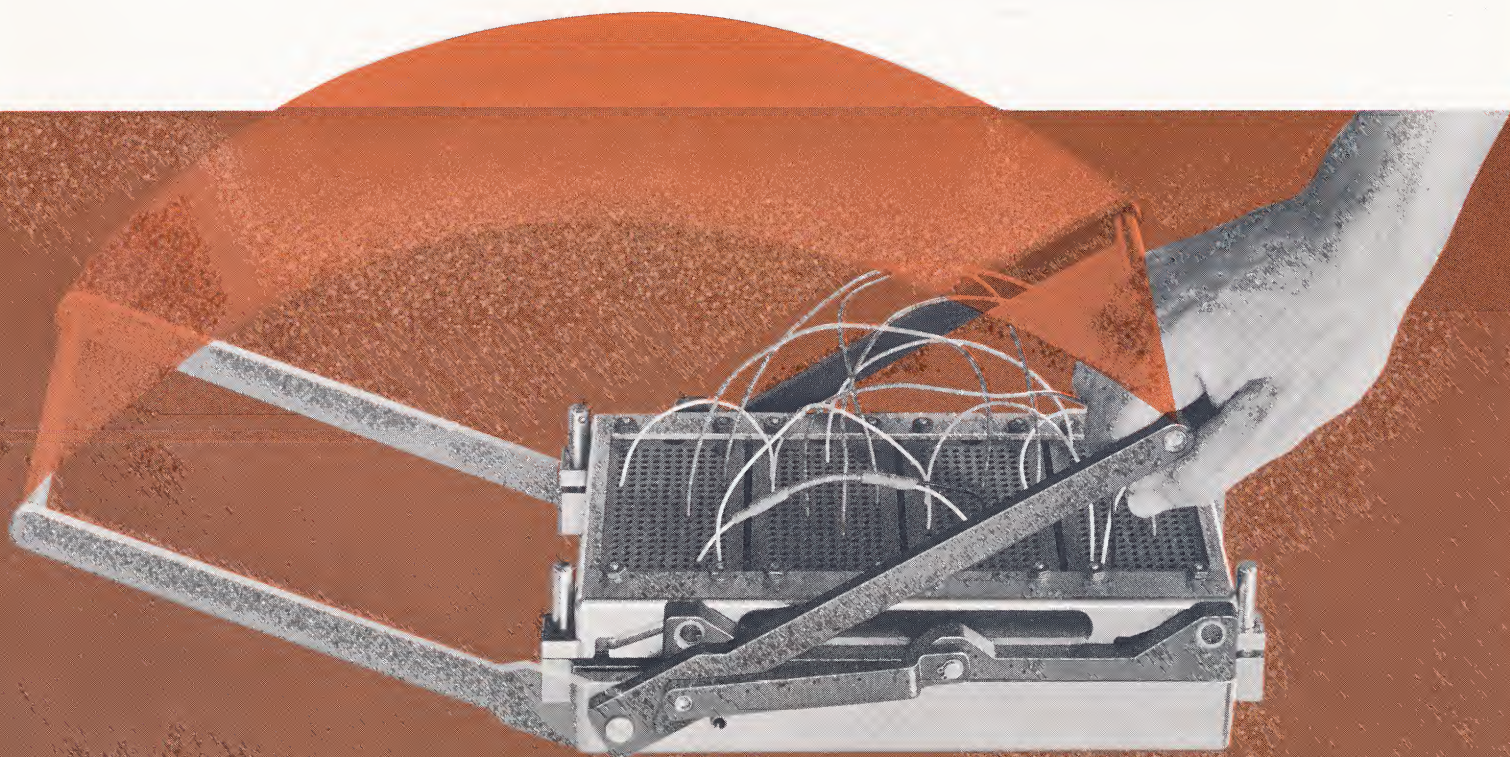




AMPHENOL

LEVER-ACTUATED
QUICK CONNECT-DISCONNECT
PATCH PANEL



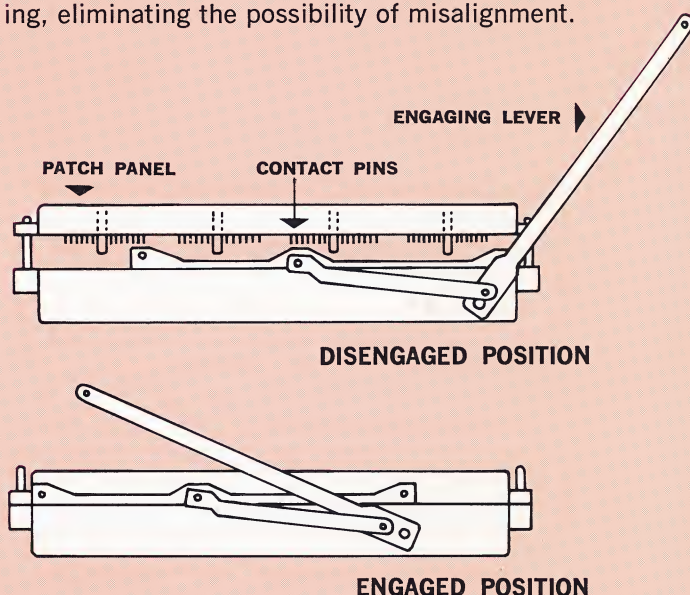


Pre-Programmable "Patch Panels" simultaneously engage and disengage 800 connections

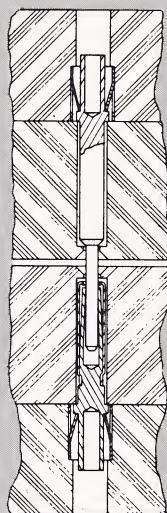
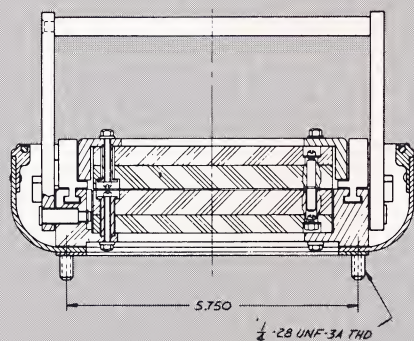
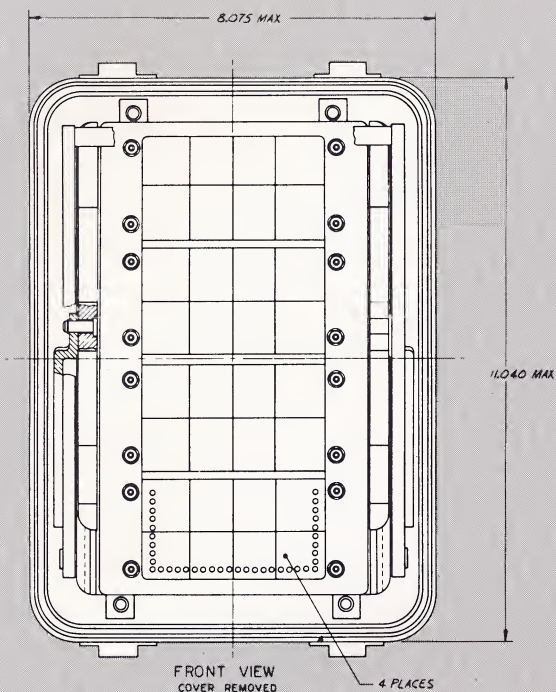
The versatility of the new AMPHENOL Patch Panel concept allows many combinations of circuitry to be pre-programmed and sealed. This permits permanent removal programming to coincide with various tapes. In low volt applications the unit can also be utilized as an in-work Patch Panel with live circuits, since the inserts can be reprogrammed while mated or unmated. Any combination of pin and socket contacts can be used, and any number of circuits can be accommodated by using multiple units. Units are available that can handle from 200 circuit contacts to 1200 circuit contacts in 200 contact-increments. The 200 contact inserts can be mounted individually while a single engaging mechanism is utilized. This affords a practical approach to stationary data processing applications where substantial quantities of inserts would be required.

Proven AMPHENOL Design used on Apollo Space Craft Launch Vehicle

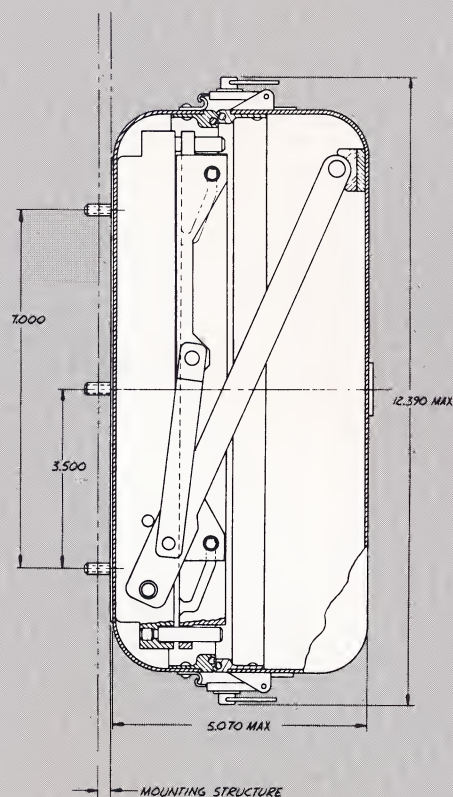
Excessive mating and unmating forces are overcome by utilizing a combination lever and inclined plane principle. The mechanical advantage is approximately 27:1 resulting in an average closing pressure for 800 contacts of only 5 lbs. Precision design includes guide-pin mating, eliminating the possibility of misalignment.



Ball-detent on guide-pins secure Patch Panel to allow the system to be mounted in any plane without the unmated half falling. To remove, only a small amount of direct manual release pressure need be applied.



NO. 20 PIN & SOCKET CONTACT
SHOWN IN MATED CONDITION
800 PLACES



ELECTRICAL AND MECHANICAL CHARACTERISTICS

Insert Diall, closed entry.
Contacts Pin - Leaded copper alloy.
Socket - Chrome copper.

20 lbs. min. pushout

Hardware All hardware is stainless steel except parts of the engaging mechanism. These parts are hard anodized aluminum.

Over-all size 12.375" x 8.00" x 5.00".

Weight 15 Pounds.

Number of contacts 800 (also available to 1200, see text)

Type of contacts Size 20, modified MIL-C-26636 pin and socket, crimp tail, Poke-Home®, rear removal contacts.

Crimping Tool MS 3191.

Contact Removal Tool .. 200-4000-750.

Contact Resistance 1 millivolt max. at 1 ampere direct current.

Insulation Resistance ... 5 megohms min. at 500 VDC.

Operating Temperature .. Minus -125°F to plus +250°F.

(w/Teflon patch cords)

Shock 20 G with 20 millisecond duration.

Humidity 5 days at 95% relative humidity.

Vibration 20 cps to 150 cps at 7 G.

(sinusoidal) 20 cps to 2000 cps 7 to 26 G's.

150 cps to 292 cps at .006 in. DA.

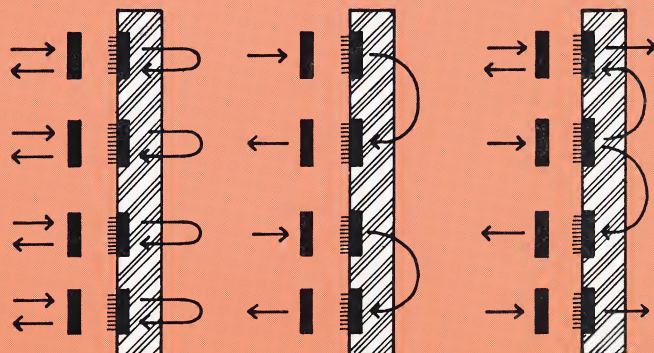
Vibration 20 cps to 2000 cps at 0.2 g²/cps while

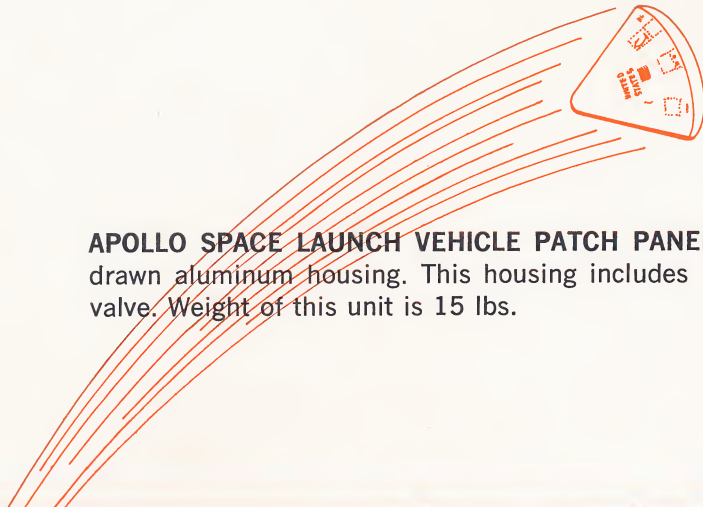
(Random) exposed to minus 65°F.

Altitude Sea level to 820,000 feet.

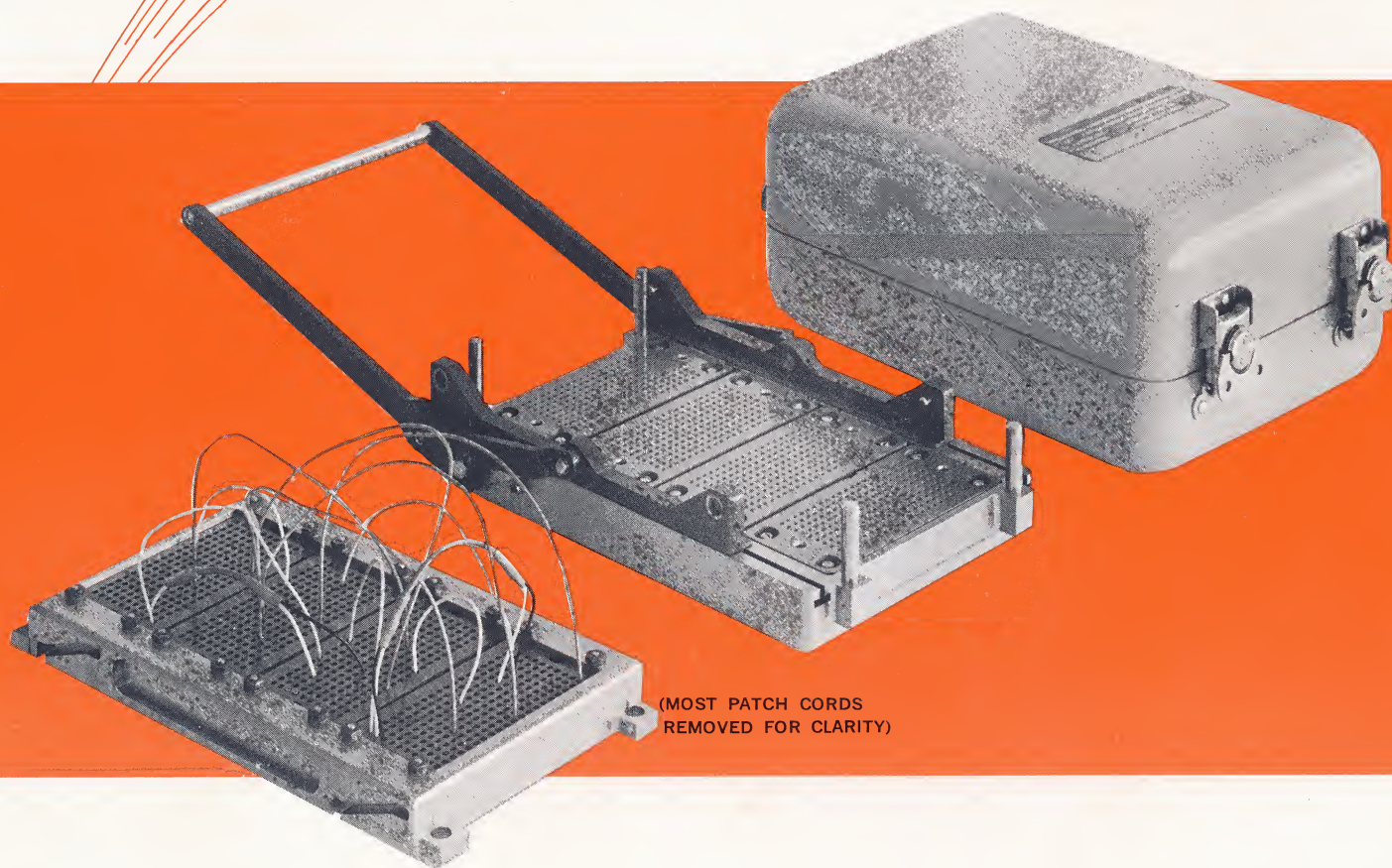
PRACTICAL APPLICATIONS

Program changes can be made in seconds with great variety of circuit possibilities by altering existing Patch Panel circuits or changing to a new pre-programmed Patch Panel. Crimp-type removal contacts utilize the standard MS 3191 crimping tool. The plug and receptacle inserts are identical and can be used in either position which allows maximum freedom in combining pin and socket applications and reduces the spares and logistics problems. Circuits can be changed while the connector is mated or unmated.





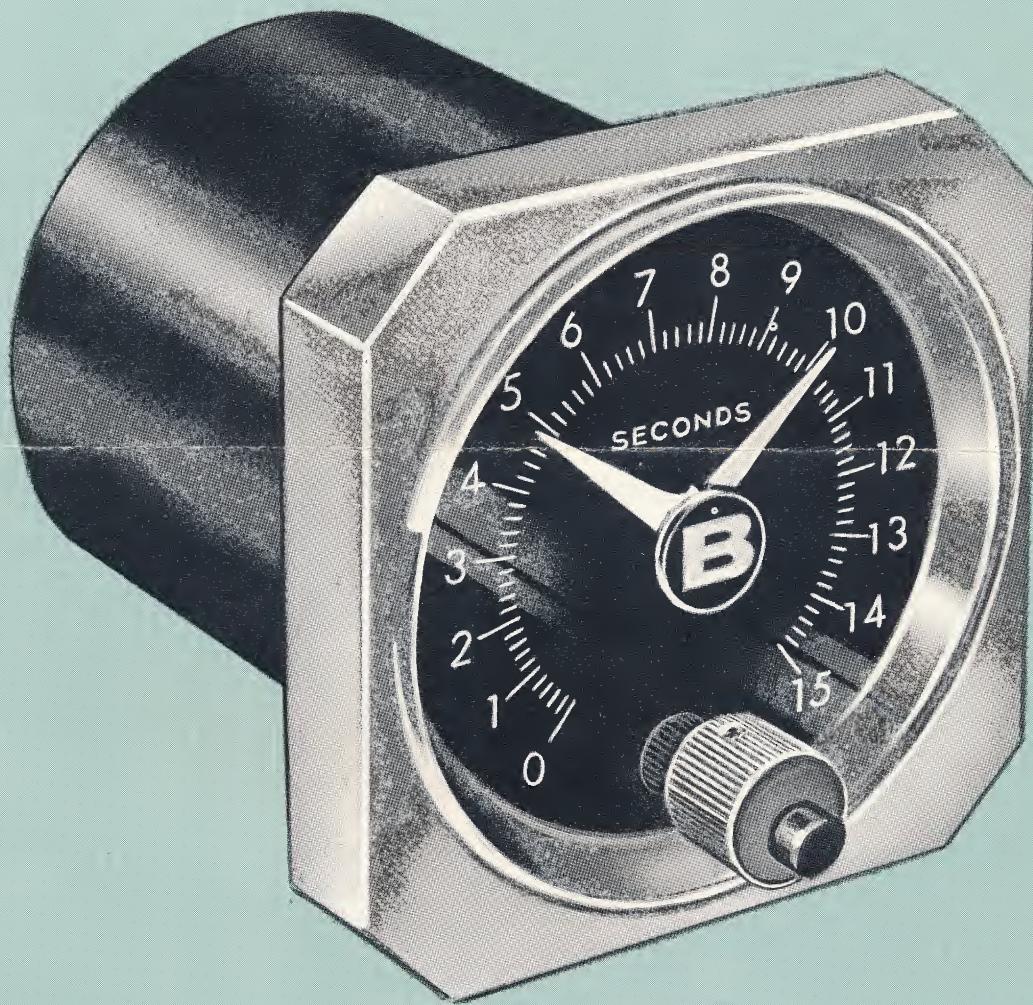
APOLLO SPACE LAUNCH VEHICLE PATCH PANEL is furnished in an environmental deep drawn aluminum housing. This housing includes EMI shielding, and a pressure relief valve. Weight of this unit is 15 lbs.



AMPHENOL  **SPACE AND MISSILE SYSTEMS**

9201 INDEPENDENCE AVENUE • CHATSWORTH, CALIF. 91311

TEL: 213-341-0710 • TWX 213-341-2531



BRISTOL SERIES 62
**PUSH-BUTTON
INTERVAL
TIMER**

the new look of reliability in
time control!

BRISTOL  MOTORS

Division of Vocaline Company of America, Inc.
Old Saybrook, Connecticut

NEW BRISTOL

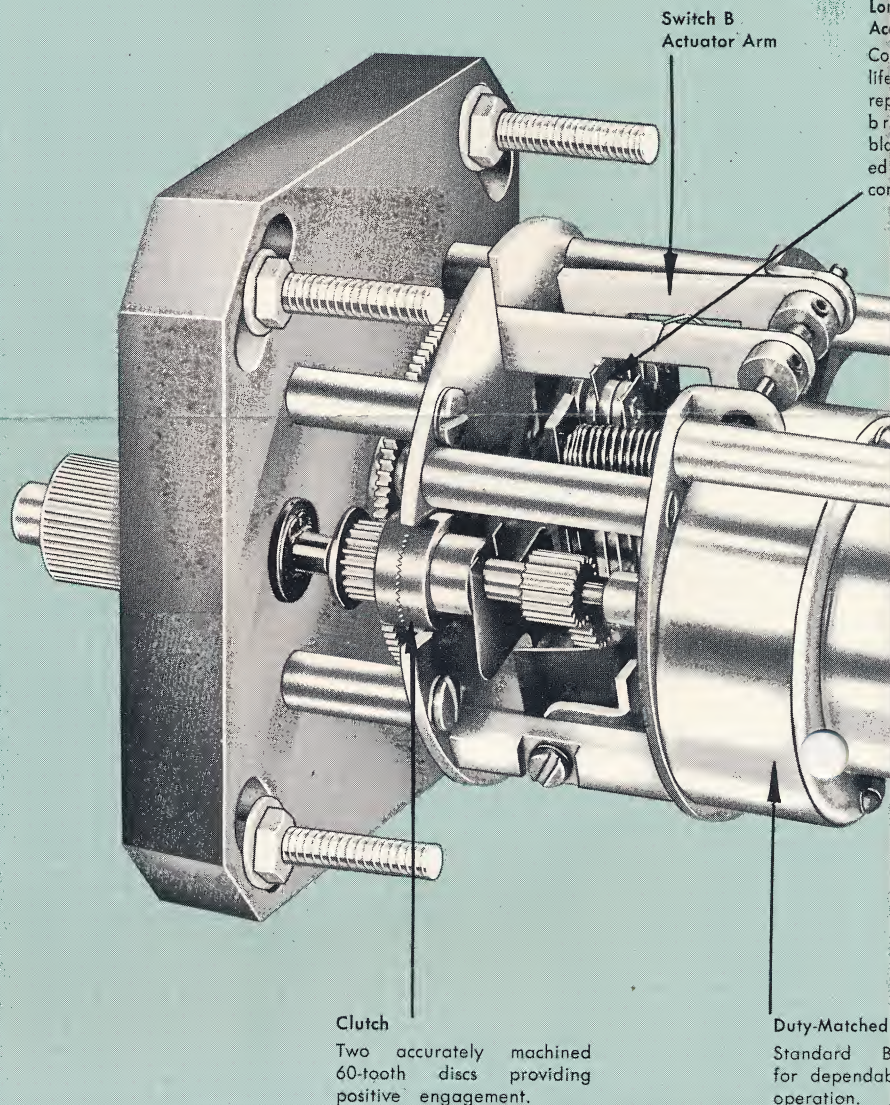


SERIES 62

Bristol's new Series 62 Push Button Interval Timer offers new design and engineering innovations which result in performance and flexibility exclusive to these units. Two independent load circuits permit a multiple number of applications with a single timer without need for further wiring changes.

Another feature is the unique accessibility of all parts. All Bristol Motors products are the result of many years in research, design and manufacture of timing equipment, synchronous motors and electromechanical devices for industrial control and instrumentation applications.

Bristol motors and timers are sold exclusively through Bristol Representatives . . . trained sales engineers familiar with the most complex timing applications and demands of industry. This specialized approach assures every customer the valuable service of men who know timing . . . men ready to help wherever possible in the solution of unusual problems. Contact your Bristol Representative for assistance with your requirements.



SPECIFICATIONS

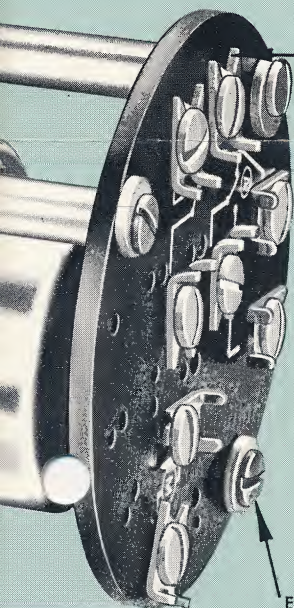
Series 62 Timer

- **Load Contacts** — (A) & (B) — Two independent load switches in all modes of operation. Rated for 15 amperes, 115-230 VAC resistive load.
- **Accuracy** — $\pm 0.25\%$ of full scale. (To maintain this accuracy on 60-second, or faster timers, the motor should be connected to run in the button depressed condition (circuit #3). The motor acceleration time is approximately 0.25 seconds.)
- **Power Consumption** — 4 watts — 5.75 volt-amps — 50 ma. at 115 VAC.
- **Timing motor** — Bristol Circle "B" Synchronous Motor.
- **Clutch** — Two accurately machined 60-tooth discs, providing positive engagement.
- **Terminals** — Load contacts and motor terminals #6-32 screws.
- **Housing** — cast Zamak front housing with glass dial cover and laminated plastic dust cover.
- **Weight** — 2 lbs. 4 oz.
- **Mounting** — Optional four-stud or two-stud mounting with #6-32 rear mounted threaded studs.
- **Temperature** — 0° to 55° C, ambient.
- **Standard Time Ranges** — 6, 15, 30, 60, 120 seconds; 5, 15, 30, 60, 120 minutes; 5, 12, 24 hours.
- **Underwriters** — U. L. Approved.

g Life ossible Contacts

Two Independent Load Circuits

A single Bristol Timer does the job of a multiple number of other makes without need for further complex wiring!



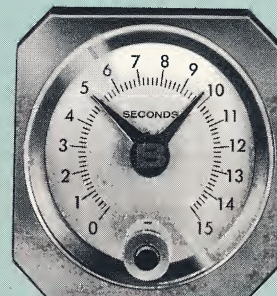
Easy Accessibility
To all parts

For quick circuit change Motor, housing and other parts, reached in just seconds by merely loosening cam action wedges to release dust cover.

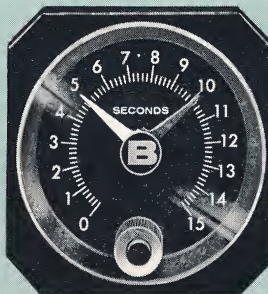
Bristol Motor
Bristol - designed
the synchronous

A close-up photograph of a vintage Borealis clock face, specifically the seconds dial. The dial is circular with a black background and white markings. It features a large, stylized 'B' logo in the center. The numbers 1 through 15 are arranged around the perimeter, with 15 at the bottom. The word 'SECONDS' is printed in white capital letters above the center. The dial is mounted on a metallic, octagonal frame.

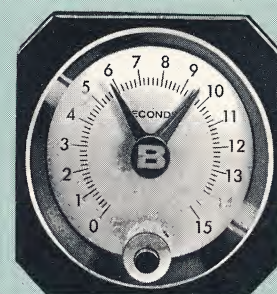
STYLE A



STYLE B



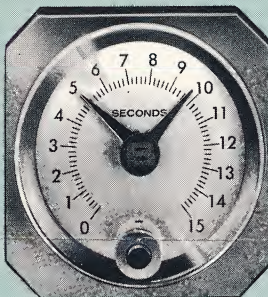
STYLE C



STYLE D

New "Bristol-Vision" Dial Design

Features square-dial plate, provides background contrast for better viewing. Pointer-position knob is easily adjusted without covering hands.



Rugged Dial Frame

Die-cast in gleaming, rust-and-corrosion-resistant Zemak. Light weight; modern, clean lines.

Bevelled Glass Dial Face

Non-scratch surface won't buckle or deform over wide range of environmental conditions. Fully sealed for permanent protection against dust.

Ordering Information *

Model No. 6210 — 30S — A — 1

Standard Timer Model

Time Range: 30S - 30 seconds
24H - 24 hours, etc.

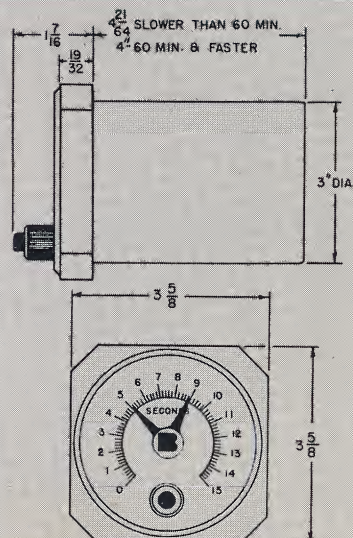
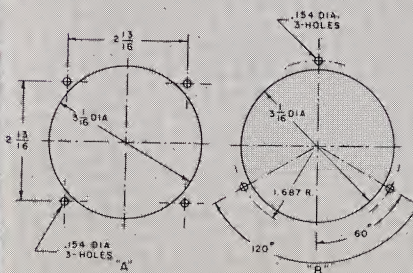
Dial Style: A — chrome frame,
black dial
B — chrome frame,
polished dial
C — black frame,
black dial
D — black frame,
polished dial

- Voltage & Frequency
- 1 — 115 volts, 60 cycles
- 2 — 230 volts, 60 cycles
- 3 — 115 volts, 50 cycles
- 4 — 230 volts, 50 cycles

* (Type D-1 will be supplied as standard unless otherwise specified.)

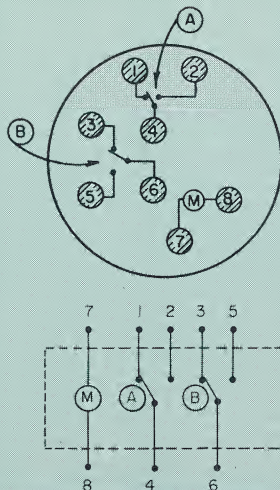
Interchangeable Mounting

The 62 series timers are provided with removable threaded studs. Timers are normally mounted with four studs, Figure A. Threaded holes are provided for alternate three-hole mounting, Figure B.



B EASIER APPLICATION

1. Select Desired Type of Output.
2. Select Desired Type of Operation.

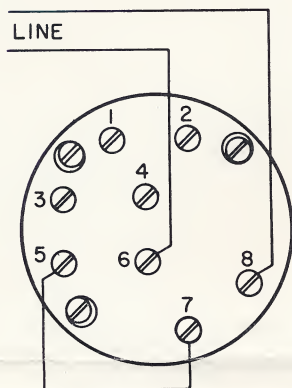


- A. SPDT load switch operates when push button is released, and returns to original position at end of set time period. (Rated 15 amp, 115-230 VAC).
- B. Auxiliary load contact and normal motor contact (rated 15 amp, 115-230 VAC). Operates when push button is released and returns to original position 1% of full time scale after end of set time period. (When motor is wired through Contact A (circuit 2) this contact operates only when the push button is depressed. It is operated at the end of the cycle by the motor.)

ALL MODES OF OPERATION — TWO INDEPENDENT LOAD CIRCUITS

CIRCUIT 1

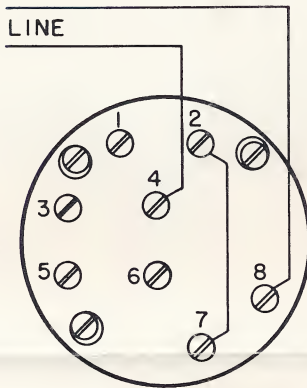
Timer is made ready when push button is depressed. Timed period starts when button is released. Two independent load circuits are available with the motor operating from the B set of contacts.



TIMER OFF (POINTER AT ZERO)	BUTTON DEPRESSED (POINTER AT SET TIME)	TIMED PERIOD (POINTER INDICATES REMAINING TIME)	TIMER OFF (POINTER AT ZERO)
A 1-4	2-3	4-5	6-8
B 3-6	5-8	1-2	3-4

CIRCUIT 2

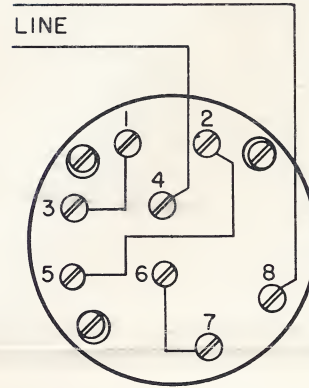
Operation is identical to Circuit 1 except that motor is wired to the A contact. The B contact, in this case, provides an external switch operated by the push button. This switch may be used to trigger other equipment at the beginning of timer operation.



TIMER OFF (POINTER AT ZERO)	BUTTON DEPRESSED (POINTER AT SET TIME)	TIMED PERIOD (POINTER INDICATES REMAINING TIME)	TIMER OFF (POINTER AT ZERO)
A 1-4	2-3	4-5	6-8
B 3-6	5-8	1-2	3-4

CIRCUIT 3

This circuit is intended to provide high accuracy for extremely fast time cycle operation. The motor starts when the push button is depressed, and runs until the end of the set time period. Load operation from Contact A is identical to Circuit 1. (Recommended for time cycles of 60 seconds or less.)



TIMER OFF (POINTER AT ZERO)	BUTTON DEPRESSED (POINTER AT SET TIME)	TIMED PERIOD (POINTER INDICATES REMAINING TIME)	TIMER OFF (POINTER AT ZERO)
A 1-4	2-3	4-5	6-8
MOTOR TERM #6 2-3	4-5	6-8	1-2

NOTE: Circuit 2 and 3 High Speed Timers (120 seconds and faster) should have Switch B Actuator Arm moved in slightly. This will prevent motor coast from operating Switch B.



BRISTOL MOTORS, DIVISION OF VOCALINE COMPANY OF AMERICA, INC.
Old Saybrook, Connecticut

BRISTOL MOTORS

division of Vocaline Company of America, Inc.
Old Saybrook, Conn. • EVergreen 8-3414

November 11, 1965

Mr. T H Nelson
Systems Consultants
Box 1546
Poughkeepsie, New York 12603

Dear Mr. Nelson:

Thank you for your recent inquiry relative to the Bristol line of timers and motors.

We have enclosed the product information you have requested and hope that you find it useful. Bristol manufactures a complete line of timers and motors and additionally takes pride in its ability to produce customized electromechanical devices.

In order to continue providing the finest products and service in our industry we are constantly trying to anticipate customer needs. Therefore, we have enclosed a short questionnaire which we hope you will be kind enough to complete. A stamped self-addressed envelope is provided for your convenience.

We look forward to hearing from you and hope that you will take advantage of our capabilities.

Thanking you in advance for your cooperation, we remain

Very truly yours,
BRISTOL MOTORS division of
VOCALINE CO. OF AMERICA, INC.

George S. Willis

Sales Department *mvc*

JS:cvb

Enclosures B-12

ST-167

Representative:

Technical Sales Company
P.O. Box 182
7506 Jefferson Avenue
Pulaski, New York



Divisions:
VOCALINE ELECTRONICS: Designers and
Manufacturers of Communications Systems

BRISTOL MOTORS: Manufacturers of
Synchronous Motors, Timing Devices

LAMCO: Laboratory for Advanced Military
Communications — Waldoboro, Maine

Mr. T H Nelson
Systems Consultant
Box 1546
Poughkeepsie, New York 12603

Please indicate your primary responsibility

- ☐ Design Engineering
- ☐ Application Engineering
- ☐ Purchasing
- ☐ Other (please specify)_____.

Principal product manufactured by your company_____

Is your request for information for:

- ☐ An Immediate Application
- ☐ Future Anticipated Need
- ☐ Reference Only

If you have an immediate use or future need, please indicate your estimated annual usage _____.

Do you presently have or anticipate having a need for other types of timers or motors ☐ yes ☐ no. If yes, please indicate timer or motor type and estimated annual usage.

	Annual Usage
☐ Repeat Cycle Timers or Programming Timers .	_____
☐ Fixed Interval Timers	_____
☐ Adjustable Interval Timer	_____
☐ Elapsed Time Indicators	_____
☐ Time Delay Relays	_____
☐ Time Delay Timers	_____
☐ Percentage Timer	_____
☐ Solid State Timer	_____
☐ Timing Motors including Shift Motors	_____

Would you like to have a field representative call on you ☐ yes ☐ no.

Thank you for filling out this questionnaire.

BRISTOL MOTORS division of
VOCALINE COMPANY OF AMERICA, INC.

OLD SAYBROOK, CONNECTICUT